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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,535	03/01/2004	Michael B. Korzenski	ATMI-692	4252
24239 7590 05/28/2008 MOORE & VAN ALLEN PLLC P.O. BOX 13706 Research Triangle Park, NC 27709				
EXAMINER				
DOUYON, LORNA M				
ART UNIT		PAPER NUMBER		
1796				
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05/28/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/790,535

Applicant(s)

KORZENSKI ET AL.

Examiner

Lorna M. Douyon

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18, 20-41, 43, 45-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25, 26, 28-33, 35-41, 43, 45, 48-56, 58, 59 and 61-63 is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-15, 20-24, 27, 34, 46, 47 and 60 is/are rejected.
- 7) ☒ Claim(s) 9-10, 16, 18, 57 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/28/06, 2/19/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

1. This action is responsive to the amendment filed on February 19, 2008.
2. Claims 1-16, 18, 20-41, 43, 45-63 are pending.
3. The rejection of claims 1-12, 14-16, 18, 20, 23-38, 40-41, 43, 45, 48-52, 60-63 under 35 U.S.C. 103(a) as being unpatentable over Mullee et al. (US Patent No. 6,500,605) in view of DeSimone et al. (US Patent No. 5,866,005) is withdrawn in view of Applicants' amendment.
4. The rejection of claims 13 and 39 under 35 U.S.C. 103(a) as being unpatentable over Mullee '605 and DeSimone as applied to the above claims, and further in view of Douglas et al. (US Patent No. 5,868,862) is withdrawn in view of Applicants' amendment.
5. The rejection of claims 1-16, 18, 20-21, 23-41, 43, 45, 48, 51-54, 60-63 under 35 U.S.C. 103(a) as being unpatentable over Joyce et al. (US Patent No. 6,764,552) in view of DeSimone is withdrawn in view of Applicants' amendment.
6. The rejection of claims 1-16, 18, 20-41, 43, 45-54, 60-63 under 35 U.S.C. 103(a) as being unpatentable over Korzenski et al. (US Patent No. 6,943,139) in view of DeSimone is withdrawn in view of Applicants' statement of common ownership, hence, this reference is disqualified under 35 U.S.C. 103(c) as prior art.

7. The rejection of claims 56, 58-59 under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (US 2004/0171502) is withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 112

8. Claims 1, 3, 10, 21, 22, 27, 34, 46, 47, 57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 1, "comprising" after "composition" is missing. (Please note that previous claim 1 contains this term).

In each of claims 3, 10, 21, 22, 27, 46, 47, 57, "comprises" should be replaced with "is" to be consistent to the claim they depend upon. Please note that the claim they depend upon recites a Markush language.

Claim 34 lacks support for "the silicon nitride particles" with respect to claim 31. This claim should properly depend from claim 32.

Double Patenting

9. Claims 22 and 47 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 21 and 46, respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 1-8, 11-13, 15, 20-24 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy (US Patent No. 6,309,425).

Murphy teaches a stain removal composition comprising a stain removal surfactant; and optionally a stain removal solvent (see col. 2, lines 16-19), wherein the solvent is a gas at standard temperature and pressure, for example, supercritical fluid, like supercritical carbon dioxide (see col. 2, lines 47-65). The surfactant includes nonionic, anionic, cationic, amphoteric or zwitterionic surfactants (see col. 3, lines 20-23), and are present from about 0.1% to about 100%, preferably from about 0.5% to about 50% by weight based on total weight of the stain removal composition (see col. 5, lines 6-12). Examples of nonionic surfactants include fatty alcohol polyalkylene ethers (see col. 3, lines 35-38). Examples of anionic surfactants include C₈-C₁₆ alkylbenzene sulfonates and C₈-C₁₆ fatty alcohol sulfates (see col. 4, lines 15-23). Other solvents include C₁-C₃ alcohols, glycols, glycol ethers, D₃-D₈ siloxanes, water and mixtures thereof (see col. 5, lines 13-24). The total amount of solvent is from about 0.0% to about 99.9%, preferably about 5.0% to about 90% by weight based on total weight of the stain removal composition (see col. 5, lines 19-25). Other additives like bleaches, for example, hydrogen peroxide, may be employed (see col. 6, lines 25-30; 54-56). (The bleaches read on etchant species of instant claim 1.) Other additives include anti-

redeposition agents like copolymers derived from acrylic acid and lauryl methacrylate, or polycarboxylic acids (see col. 6, lines 31-36), which read on the “binder” of instant claim 1. Other additives include enzyme stabilizers like boric acid (see col. 6, lines 50-53). The amount of optional additives employed in the stain removal composition is limited only to the extent the amount used does not prevent the stain removal composition from minimizing the impact of the forces and interactions between the contaminant targeted for removal and the substrate, and typically, the total amount of optional additive used is from about 0.0% to about 15%, preferably from about 0.1% to about 12% by weight based on total weight of the stain removal composition (see col. 6, line 62 to col. 7, line 6). Murphy also teaches soil removal in col. 14, lines 10-11, and it is understood that the composition comprises a silicon-containing particulate material. Murphy, however, fails to specifically disclose a composition comprising supercritical carbon dioxide, a co-solvent like methanol and water, hydrogen peroxide (etchant species), copolymers derived from acrylic acid and lauryl methacrylate and boric acid.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have prepared a cleaning composition comprising supercritical carbon dioxide, a co-solvent like methanol and water, hydrogen peroxide, copolymers derived from acrylic acid and lauryl methacrylate and boric acid because the teachings of Murphy encompass these ingredients which provide stain removal properties.

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12. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy as applied to claim 1 above, and further in view of Flynn et al. (US Patent No. 5,962,390), hereinafter "Flynn".

Murphy teaches the features as described above. Murphy, however, fails to disclose ethoxylated fluorosurfactant.

Flynn, an analogous art, teaches the equivalency of ethoxylated alcohols with ethoxylated fluoroalcohols as nonionic surfactants.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the ethoxylated alcohols of Murphy with ethoxylated fluoroalcohols because the substitution of art recognized equivalents as shown by Flynn is within the level of ordinary skill in the art.

Allowable Subject Matter

13. Claims 25-26, 28-33, 35-41, 43, 45, 48-56, 58-59, 61-63 are allowed. None of the prior art of record teaches, discloses or suggests a method of removing silicon-containing particulate mater from a semiconductor wafer as those recited in the present claims. In addition, none of the prior art of record teaches, discloses or suggests a method as required in claim 55 wherein the SCF-based composition comprises the recited ingredients, or a method as required in claim 56 (the limitations of claim 57 indicated to be allowable in the previous office action are added into claim 56) wherein the pre-cleaning formulation comprises ammonium hydroxide, t- butyl hydrogen peroxide and water.

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14. Claims 9-10, 16, 18 and 57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. Claims 27, 34 and 46 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lorna M. Douyon whose telephone number is 571-272-1313. The examiner can normally be reached on Mondays-Fridays 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lorna M. Douyon/
Primary Examiner
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